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CITATION:

Tanaka, Kazushi ...[et al]. Benign cystic lesion of the tunica albuginea : a case report. 泌尿器科紀要 2004, 50(1): 45-48

ISSUE DATE:

2004-01

URL:

<http://hdl.handle.net/2433/113289>

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## BENIGN CYSTIC LESION OF THE TUNICA ALBUGINEA: A CASE REPORT

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We describe a patient whose testicular parenchyma was displaced by a cyst. Histologic findings suggested that the cyst was a dilated efferent ductule passing through the tunica albuginea. Such a cyst is an important and benign consideration in the differential diagnosis of testicular masses. Although orchiectomy was performed in this case, early consideration and confirmation of benign lesions may permit testicular preservation.

(Acta Urol. Jpn. 50 : 45–48, 2004)

**Key words :** Testicular cysts, Intrascrotal masses, Tunica albuginea, Efferent ductules, Ultrasonography

### INTRODUCTION

Rare but important differential diagnostic possibilities for testicular masses include cystic lesions that can clinically be mistaken for cancer. If possible, such cysts should be distinguished from malignant tumors before radical surgery is performed. Although our patient underwent orchiectomy, by early evaluation of cystic lesions, we sometimes may conclude that testicular preservation is possible.

In 1929 Frater<sup>1)</sup> reported a cyst that was believed to arise from the tunica albuginea possibly as a result of trauma. Arcadi<sup>2)</sup> reported three cases of such a cyst in 1952 and suggested an inflammatory origin. More recently, Mennemeyer and Mason<sup>3)</sup> reported two cysts and presented ultrastructural evidence for an efferent ductule origin. Mancilla-Jimenez and Matsuda<sup>4)</sup> however, reported four cysts and advocated an origin from mesothelial rests. Against this background of controversy, an additional cyst of the tunica albuginea is reported.

### CASE REPORT

A 68-year-old man previously hospitalized for pulmonary tuberculosis had noted a large right intrascrotal mass for about 10 years. Upon presentation the patient reported dull pain in relation to the mass, which had enlarged slowly during the preceding 3 years. No history of trauma, dysuria, or weight loss was elicited. On physical examination, a firm mass was present at the upper pole of the right testis. Ultrasonography revealed a mass measuring 5.0 by 2.5 cm. that demonstrated low echogenicity at the upper pole of the right testis, projecting into and compressing the testicular parenchyma (Fig. 1A). The wall of the cyst was continuous with the tunica albuginea. Serum concentrations of  $\alpha$ -fetoprotein

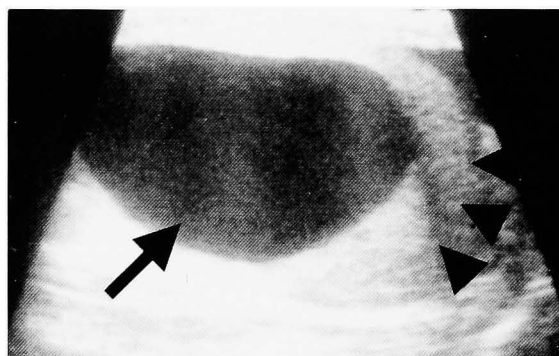


Fig. 1A. Longitudinal sonogram shows a large cyst (arrows) projecting into testicular parenchyma (arrowheads). There was a large anechoic lesion with enhanced posterior sound transmission. The cyst has well defined walls, which connected with tunica albuginea.

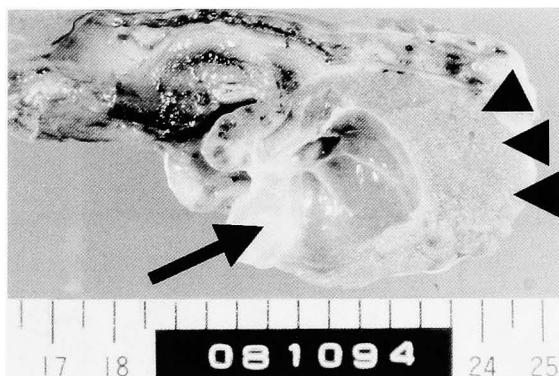


Fig. 1B. Resected testis shows a large cyst (arrows) and small cysts widely connected to the tunica albuginea and projecting into testicular parenchyma (arrowheads).

and the  $\beta$  subunit of human chorionic gonadotropin were within normal limits. Because the possibility of

a malignant tumor was not completely excluded and most of the testis was occupied by the cyst, radical orchiectomy was planned.

Inguinal exploration of the right testicle confirmed the presence of a smooth firm cystic mass at the upper pole of the testis. Right radical orchiectomy was performed. Macroscopic inspection of the cut surface of the testis revealed a large cyst accompanied by multiple small adjoining cysts (Fig. 1B). The cysts were filled with serous fluid and their walls were continuous with the tunica albuginea. The epididymis appeared unremarkable. The fluid was not analyzed.

**Histopathological findings.** Microscopically, the large cyst had a thick fibrous connective tissue wall with an inner lining of flattened epithelium. Under high magnification, a few scattered lining cells showed cilia at their luminal aspect (Fig. 2A). The small cysts were lined by a single layer of ciliated cuboidal

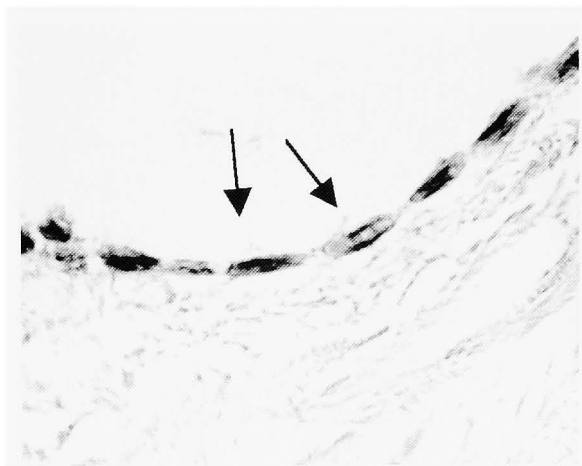


Fig. 2A. Microscopic section of the large cyst. Lining of the cysts shows flat cells as well as scattered ciliated cells (arrows) (H & E. original magnification,  $\times 250$ ).

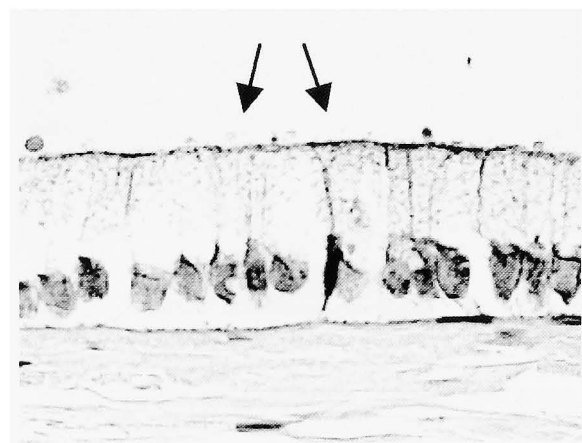


Fig. 2B. Microscopic section of a small cyst. Cuboidal cells with cilia on their luminal sides (arrows) (H & E. original magnification,  $\times 250$ ).

epithelium (Fig. 2B). No microscopic evidence of inflammation was seen in the testis or epididymis.

## DISCUSSION

Benign testicular tumors are considered rare<sup>5)</sup> as are cystic lesions of the tunica albuginea. However, Haas et al.<sup>6)</sup> reported that 31% of inguinal explorations for suspected testicular tumors resulted in findings of benign disease. Further, results of ultrasonographic screening for intrascrotal disease reported by Gooding et al.<sup>7)</sup> suggest that testicular cysts are not rare.

Previous reports have proposed various etiologies for testicular cysts, including formation in the tunica albuginea subsequent to trauma and hemorrhage as well as development of retention cysts as a consequence of infection<sup>2)</sup>. Another theory is that the cysts represent embryonal remnants. Recent reports have suggested an origin from mesothelial rests or efferent ductules passing through the tunica albuginea<sup>3,4,8,9)</sup>. In an ultrastructural study, Mennemeyer and Mason demonstrated cilia in the epithelial lining of the efferent ductules and also demonstrated that the cells lining cysts had cilia and microvilli in varying proportions<sup>3)</sup>; the distribution of cilia and microvilli in cysts resembled that in normal efferent ductules. Mesothelial cells do not possess cilia, weakening arguments for a mesothelial origin.

Although ultrastructural studies were not performed in our case, light microscopic examination showed ciliated lining cells in the large cyst as well as the small cysts. This observation supports an origin from the efferent ductules passing through the tunica albuginea en route to the epididymis. The large cyst apparently had expanded over several years as fluid accumulation increased. Such gradual enlargement accounts for the time of detection of these cysts typically at middle age<sup>3,8,9)</sup>. In this case, the fluid was not analyzed, but previously reported findings have demonstrated that efferent ductule cysts contain serous fluid<sup>3,8,9)</sup>.

Ultrasonographic images depict the cystic portion of malignant tumors as multiple areas scattered within the tumor. Epidermoid cysts present as a palpable mass and appear on ultrasonographic images as solitary cystic structures with an echogenic rim. Cysts of the tunica albuginea, which are rare, usually are apparent as small masses near the surface. In ultrasonographic images they appear as cysts with an otherwise normal testis. In contrast, intratesticular cysts of the rete testis are never palpable as masses<sup>10,11)</sup>.

In our case a high inguinal orchiectomy was performed because the large cyst had displaced most of the testicular parenchyma and was causing intrascrotal pain. However, small asymptomatic cysts may be managed with testis-sparing procedures.

Ultrasonography is particularly useful for examination of these lesions. An orderly approach for testicular preservation begins with a clear clinical understanding of benign cystic intrascrotal diseases combined with a carefully obtained history, physical examination, and ultrasonographic evaluation. Conservative management can be adopted if a benign diagnosis can be established.

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(Received on June 24, 2003)  
(Accepted on October 4, 2003)

## 和文抄録

## 精 巢 白 膜 囊 胞 の 1 例

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われわれは正常精巣を圧排するように存在する精巣白膜囊胞の1例を経験した。組織学的には精巣輸尿管由来と考えられる囊胞であった。このような精巣の良性囊胞性疾患は、精巣腫瘍と鑑別する上で重要であ

る。自験例は高位精巣摘除術が施行されたが、術前十分な検討のもと良性疾患の診断が行われれば、精巣温存可能と思われる。

(泌尿紀要 50 : 45-48, 2004)

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